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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/822,546

03/30/2001

Motomichi Shibano

3531.65362

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24978

7590

01/18/2006

GREER, BURNS & CRAIN  
300 S WACKER DR  
25TH FLOOR  
CHICAGO, IL 60606

EXAMINER

PATEL, GAUTAM

ART UNIT

PAPER NUMBER

2656

DATE MAILED: 01/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/822,546

Applicant(s)

SHIBANO ET AL.

Examiner

Gautam R. Patel

Art Unit

2656

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 December 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 4-7 and 11-14 is/are allowed.
- 6) ☒ Claim(s) 1-3 & 8-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**Response to Amendment**

1. This is in response to amendment filed on 12-12-05.

**Claim Rejections - 35 U.S.C. § 103**

2. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Hasegawa, US. patent 5,708,644 (hereafter Hasegawa) in view of Nakano, JPO Application 06-083206 (hereafter Nakano).

As to claim 1, Hasegawa discloses the invention as claimed [see Figs. 1-9, especially 1-3], including a stem, a substrate, a laser diode, and a photodetector, comprising:

a stem [figs. 1-3, unit 6]; and

a photodetector [figs. 1-3, unit 10 and 12] provided on said substrate for detecting return light from an object to be irradiated [col. 3, lines 3-22].

NOTE: Upper surface of the stem performs the function of the substrate in Hasegawa design.

Hasegawa discloses all of the above elements, including stem, which works as a substrate [figs. 1, upper surface of unit 6] for mounting components. Hasegawa does not disclose very well known system of back-plane mounting, or a separate substrate from the stem and an insulating layer between them so that substrate can be biased.

However, back-plane mounting in thick-film, thin-film, chip-on-board and PC-board layout has been well known in the art since early sixties. These systems provide better heat dissipations and designs that are more compact and easy serviceability when provided with multiple insulating and conducting layers.

More importantly, Nakano clearly discloses:

a substrate [figs. 1, unit 1] mounted on said stem [ABSTRACT and paragraph 16-18];

a laser diode [figs. 1, unit 4] mounted on, and electrically insulated from [fig. 1, insulating layer 3], said substrate [ABSTRACT and paragraph 16-18]; and

A structure where the substrate being biased at a given voltage [node 2] and having an insulating member [substrate works as an insulating member, when mounted on other surface] opposed to said stem [ABSTRACT and paragraph 16-18].

Both Hasegawa and Nakano are interested in improving the layout of the components, both are showing components mounted on a base and both are trying to make their design more compact.

One of ordinary skill in the art at the time of invention would have realized that the system of Hasegawa would have been sensitive to noise with the high frequency components. In addition, these components may produce higher frequency disturbance. In addition, short wires and close placement of components on the insulating member would be a good for high frequency components.

Therefore, it would have been obvious to have used a biased substrate and an insulated laser diode in the system of Hasegawa as taught by Nakano because one would be motivated to increase writing speed on the disc and reduce noise, by placing components closes to signal and isolating them with insulating layer and back biasing them in the system of Hasegawa and provide better signal controls and improve quality of the design [ABSTRACT; Junichi].

3. The aforementioned claim 2, recites the following elements inter alia, disclosed in Hasegawa:

a beam splitter unit [fig. 1, unit 16] having a polarization beam splitter [fig. 1, unit 18] and a beam splitting element [fig.1, unit 22] formed of a birefringent crystal [col. 3, lines 2-50];

said photodetector comprising a first photodetector for detecting a servo signal from a laser beam focused on said object, and a second photodetector for monitoring an output from said laser diode [col. 3, line 54 to col. 4, line 22];

said beam splitter unit further having a hologram lens for focusing monitor light to said second photodetector [col. 4, lines 19-65].

4. Claim 3 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Hasegawa and Nakano as applied to claims 1-2 above, and further in view of Noishiki, U.S. patent 5,367,530 (hereafter Noishiki).

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As to claim 3, combination of Hasegawa and Nakano discloses all of the above elements, including several photo-diodes. The combination does not specifically disclose the structure of the photo-diode that is being used in the system is a PIN-photodiode.

However, use, structure and application of PIN diodes are well known in the art. It is also well known that when single base layout is being used use of these kind of diodes saves space and layout complexity.

Also Noishiki clearly discloses:

That the photodetector comprises a PIN-photodiode [col. 5, lines 20-27]. Both combination of Hasegawa and Nakano and Noishiki are interested in improving the layout of the single substrate design.

One of ordinary skill in the art at the time of invention would have realized that in the system of Hasegawa and Nakano good lead position for better electrical connections is a good attribute to have along with compact arrangement of the components.

Therefore, it would have been obvious to have used a PIN structure of the photo-diode in the system of Hasegawa and Nakano as taught by Noishiki because one would be motivated to make the layout of the components more simple and more compact thus reducing noise in the system of Hasegawa and Junichi. [col. 2, lines 14-18 and lines 64-68; Noishiki].

5. Claims 8-10 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Hasegawa, Nakano and Noishiki as applied to claims 1-3 above, and further in view of AAPA (Applicant's Admitted Prior Art) [pages 1-6].

6. As to claim 8, it is rejected for the similar reasons set forth in the rejection of claim 1, supra. As to the added limitations of a base and a carriage moveable along the optical storage medium, the combination of Hasegawa and Nakano does not disclose it.

However, use of a base and a movable carriage structure and application are well known in the art.

Also AAPA clearly discloses:

a base; and

a carriage moveable along said optical storage medium [pages 1-3, specification].

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All Hasegawa, Nakano, Noishiki and AAPA are interested in improving the layout of the single substrate design.

One of ordinary skill in the art at the time of invention would have realized that the system of Hasegawa, Nakano and Noishiki size reduction is a good attribute to have along with compact arrangement of the components.

Therefore, it would have been obvious to have used a base and a and a moveable carriage in the system of the above combination as taught by AAPA because one would be motivated to reduce the size of the design [page 1, specification].

7. As to claims 9-10, they are claims corresponding to claims 2-3 respectively and they are therefore rejected for the similar reasons set forth in the rejection of claims 2-3 respectively, supra.

#### **Allowable Subject Matter**

8. Claims 4-7 and 11-14 are allowable over the prior art of record.

NOTE: Claims 4-7 and 11-14 are allowable over the prior art of record since the cited references taken individually or in combination fails to particularly disclose an optical pickup apparatus which includes a laser diode which is constructed such that “laser diode has a first electrode opposed to the [main] substrate with a first insulating film, a conductor film, and a second insulating film being interposed between said first electrode and the main substrate”. It is noted that the closest prior art, Junichi shows a similar apparatus which has components mounted with several layers of the conducting and insulating layers and also the base is biased. However Nakano fails to disclose a laser diode structure, specifically in this kind of optical head environment, which has two distinct insulating films arranged in the manner described and claimed.

9. Applicant's arguments filed on 12-12-05 have been fully considered but they are not deemed to be persuasive for the following reasons.

In the REMARKS, the Applicant argues as follows:

A) That: "Hasegawa reference ... nor any of the other cited references, disclose or suggest an optical pickup, or an optical storage device, that includes, *inter alia*, a "a stem" and a "substrate mounted on a stem," as defined in independent claims 1 and 8." [page 9, paragraph 1; REMARKS].

FIRST: Hasegawa clearly discloses an optical pickup [col. 1, line 52]. Hasegawa class it optical head, so the Examiner does not agree with this argument.

SECOND: This a 103 rejection NOT 102, so Hasegawa does not have to discloses all elements.

THIRD: Having substrate mounted on stem is not patentable as such, since all substrates mounted on something.

B)That; "First, Applicants respectfully submit that the cited references fail to disclose ... Hasegawa reference is merely a single element, therefore it makes little sense to consider that the stem is amounted upon itself. ... the device of Hasegawa fails to disclose or suggest all of the claimed features of the present invention" [page 9-10, paragraphs 4-1; REMARKS].

FIRST: The Examiner agrees with the Applicants that Hasegawa does not disclose all the features. However this a 103 rejection not 102.

SECOND : also see arguments above in paragraph 10, section A).

C) That: "JP 07-272304 does not appear to mention a n insulating layer between a substrate and a stem.

FIRST: As mentioned before if substrate is a conducting layer by default one must provide insulation so as it will not short circuit with other members components on the same board. This is inherently done. without it device will not work.

SECOND: JP 07-272304 does point towards insulating layer see layer 3.

10. **THIS ACTION IS MADE FINAL.** See M.P.E.P. § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. § 1.136(a).

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A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

#### **Contact Information**

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gautam R. Patel whose telephone number is 571-272-7625. The examiner can normally be reached on Monday through Thursday from 7:30 to 6.

The appropriate fax number for the organization (Group 2650) where this application or proceeding is assigned is 703-872-9306.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Hoa Nguyen can be reached on (571) 272-7579.

Any inquiry of a general nature or relating to the status of this application should be directed to the Electronic Business Center whose telephone number is 866-217-9197 or the USPTO contact Center telephone number is (800) PTO-9199.



**GAUTAM R. PATEL  
PRIMARY EXAMINER**

Gautam R. Patel  
Primary Examiner  
Group Art Unit 2655

January 13, 2006